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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,961	08/08/2001	Carl M. Hoffmaster	05516.089001	1995
22511	7590	05/04/2004	EXAMINER	
OSHA & MAY L.L.P. 1221 MCKINNEY STREET HOUSTON, TX 77010			DANG, HOANG C	
			ART UNIT	PAPER NUMBER
			3672	
DATE MAILED: 05/04/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/924,961

Applicant(s)

HOFFMASTER ET AL.

Examiner

Hoang Dang

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 132-150 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 132-150 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 1, 2004 has been entered.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 132, 133, 134, 135, 139, 140 and 150 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by McGarian et al (see cutting elements 54 in Figures 6-8 or cutting elements 58 in Figure 9 - the cutting elements 54 or 58 on one blade clearly contact a wellbore at a substantially same axial location as the cutting elements 54 or 58 on the other blade).

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 143, 145, 146 and 149 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGarian et al '054.

As for claim 143, McGarian et al discloses the invention as claimed except it does not disclose the size of the cutting elements. However, it would have been obvious to use cutting elements having the size in the claimed range since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

As for claims 145, 146 and 149, McGarian et al disclose the invention as claimed except that McGarian et al do not disclose the material of the pads and/or blades. However, it would have been obvious to use the material as claimed since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

3. Claims 132, 133, 134, 135, 139, 140, 143, 145, 146, 148, 149 and 150 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGarian et al (US 5,853,054) in view of Mensa-Wilmot et al (US 6,507,025).

McGarian et al discloses the invention as claimed (see figures 1, 2, 5-9 and column 5, line 51 through column 7, line 17) except for the "redundant" cutters. It appears from figures 1, 2 and 5-9 of McGarian et al that at least some redundant cutting do occur due to the symmetrically arrangement of the cutter blades 6A and 6B and numerous cutting elements provided on these blades. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide McGarian et al with "redundant cutters" as claimed in view of the

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teaching of Mensa-Wilmot et al in order to increase the durability and life of the drill bit (see column 12, lines 6-29).

As for claim 143, it would have been obvious to use cutting elements having the size in the claimed range since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

As for claims 145, 146 and 149, it would have been obvious to use the material as claimed since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

4. Claims 136 and 147 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGarian et al in view of Mensa-Wilmot et al '025 as applied to claim 132 above, and further in view of Hansen et al (US 5,979,576) or Griffin et al (US 6,142,250).

McGarian et al as modified by Mensa-Wilmot et al discloses the invention as claimed except for the presence of a "vibration damping insert". However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide McGarian et al as modified by Mensa-Wilmot et al with a vibration damping insert as claimed because it is well known in the well drilling art to provide such an insert to enhance the stability of the drill bit or to minimize bit whirl as evidenced by Hansen et al (see column 6, lines 19-26) or Griffin et al (see column 5, lines 41-51).

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As for claim 147, it is conventional in the art to mount cutting elements such that the cutting element exposure is more than half of a diameter of the cutting element as evidenced by either Hansen et al or Griffin et al. (see cutting elements in the drawings of these patents)

5. Claims 137, 138 and 144 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGarian et al in view of Mensa-Wilmot et al '025 as applied to claim 132 above, and further in view of Beaton et al (US 6,269,893) or Huang et al (US 6,516,293).

McGarian et al as modified by Mensa-Wilmot et al discloses the invention as claimed except that the cutting elements are not disclosed as being arranged such that the axial force, lateral force or mass is balanced. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange cutting elements of McGarian et al as modified by Mensa-Wilmot et al so as to have the axial forces, lateral forces and mass balanced as claimed in view of the teaching of Beaton et al (see column 5, line 32 through column 6, line 10) or Huang et al (see column 13, lines 51-61) in order to improve drilling stability or/and drilling performance.

6. Claims 141 and 142 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGarian et al in view of Mensa-Wilmot et al '025 as applied to claim 132 above, and further in view of Mensa-Wilmot et al (US 6,164,394).

McGarian et al as modified by Mensa-Wilmot et al '025 disclose the invention as claimed except for the recited range of the backrake angles. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the angles in the claimed range or use cutting elements having different backrake angles because Mensa-Wilmot et al '394

teach using cutting elements having different backrake angles and using backrake angles within the claimed range to enhance drilling performance (see column 10, lines 34-35).

### ***Response to Arguments***

Contrary to applicant's argument and Item 7 of the Declaration of Graham Mensa-Wilmot, in the embodiment of Figures 6-8 of McGarian et al, cutting elements 54 which extend substantially the entire length of gauge zone D on both blades (6A and 6B) are positioned to contact a wellbore at a substantially same axial location. The cutting elements 54 on one of the blades therefore form a redundant cutting arrangement as claimed. Similarly in the embodiment of Figure 9 of McGarian et al, cutting elements 58 which extend substantially the entire length of gauge zone D on different blades (6A and 6B) are positioned to contact a wellbore at a substantially same axial location. Therefore, the cutting elements 58 on one of the blades form a redundant cutting arrangement as claimed.

Applicant and the declarant assert that McGarian suggests that cutting elements disposed on the expandable blades are spaced to provide full cutting coverage while rotating. Applicant further refers to column 6, line 62 of McGarian to support applicant's contention that McGarian teaches spacing the cutting element apart to give full area coverage as the tool rotates. However, McGarian only suggests such an arrangement for the natural diamond inserts 57, NOT for cutting elements 54 or 58.

Contrary to applicant's argument and Declarant's contention that cutter elements are typically arranged on a reamer blade such that the cutter elements on the next reamer blade cut a

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different portion of the formation, cutting elements 54 on different blades in Figures 6-8 and cutting elements 58 on different blades in Figure 9 of McGarian clearly substantially overlapped.

Contrary to applicant and Declarant's argument, the "redundant cutters" disclosed in the Mensa-Wilmot reference '025 that the examiner relies on are the ones that follow in the same swath or keft cut by a preceding cutting element and therefore "substantially overlapped".

Specifically, Mensa-Wilmot discloses in column 12, lines 6-18 that:

"Referring again to FIG. 4, it is preferred that cutter set 50A include other cutter elements 40 that have the same cutting profiles as some or all of the elements 40a-40d. Such cutter elements are mounted on the bit face 20 at substantially the same radial position as elements 40a-40d, but are positioned in blades other than 31 and 33. So positioned, these elements therefore follow in the same swath or kerf cut by a preceding cutter element 40 of set 50A. As used herein, such elements may be referred to as "redundant" cutters. Redundant cutters increase the durability and life of the bit 10 by increasing the diamond density, and thus ensure that well defined stabilizing grooves are formed in the formation material." (emphasis added)

The examiner does not agree with applicant and Declarant's contention that one would not look to the teachings of the drill bit art to solve a problem in the underreamer art. The teaching that the examiner relies on in the Mensa-Wilmot reference '025 is the statement of "[r]edundant cutters increase the durability and life of the bit 10 by increasing the diamond density". This general teaching (i.e., the use of redundant components to increase the service life of a device) should not be limited to only drill bits.

As for the rejection of claims 136 and 147, the "vibration damping inserts" do not distinguish from the inserts disclosed by Hansen and Griffin et al. It is well established that a combination can be made for a purpose different from that of applicant. Whether Hansen and Griffin suggest a redundant cutting arrangement is irrelevant since that is not what the examiner relies on.



Regarding applicant's argument regarding claims 137, 138, 141, 142 and 144, whether Beaton, Huang and Mensa-Wilmot '394 suggest a redundant cutting arrangement is irrelevant since that is not what the examiner relies on from these references.

### ***Conclusion***

7. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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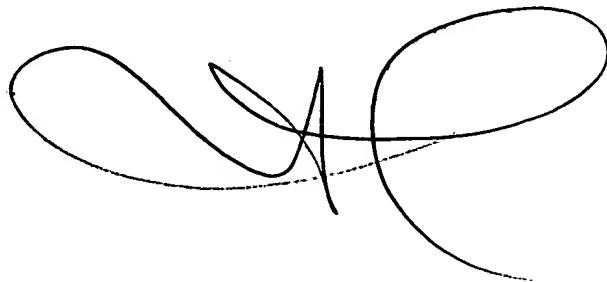
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang Dang whose telephone number is 703-308-2149. The examiner can normally be reached on 9:15-5:45 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Bagnell can be reached on 703-308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Hoang Dang**  
**Primary Examiner**  
**Art Unit 3672**

09924961.1finRCE  
4/29/2004

A handwritten signature in black ink, consisting of a large, stylized 'H' followed by a series of loops and a long horizontal stroke extending to the right.